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| 09/864,123 | 05/25/2001 | Bernhard Alphonso Ziegner | 17539 | 1456 |

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EXAMINER

KOBERT, RUSSELL MARC

ART UNIT PAPER NUMBER

2829

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/864,123

Applicant(s)

ZIEGNER ET AL.

Examiner

Russell M Kobert

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-43 is/are allowed.
- 6) ☒ Claim(s) 1-8, 15-17, 19 and 22 is/are rejected.
- 7) ☒ Claim(s) 9-14, 18, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

1. Applicant's arguments with respect to claims 1-8, 15-17, 19 and 22 have been considered but are moot in view of the new ground(s) of rejection.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Quan (5631446).

Quan anticipates a multilayer microwave or mm-wave circuit (Figures 1, 2a, 2b, 2c) comprising:

a first metallization layer (56), at least a portion of said first metallization layer adapted for operation at a frequency ranging from 20GHz to 100 GHz;

a second metallization layer (54), at least a portion of said second metallization layer adapted for operation as a ground plane (col 2, ln 61-63);

a dielectric substrate layer (52), said dielectric substrate layer disposed between said first and second metallization layers; and

a plurality of conductive vias (shown in the embodiment of Figure 4A; 64") extending through said dielectric substrate layer and through said first and second metallization layers and electrically connecting portions of said first and second metallization layers, wherein an interior surface of said conductive vias is plated with an

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electrically conductive material (col 3, ln 49-53) and a central portion of said conductive vias is substantially free of electrically conductive material (note holes 64 or 64" are not completely filled through the center as shown in their respective figures), said multilayer microwave or mm-wave circuit being a flexible circuit (col 2, ln 38-41); as recited in claim 1.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2-8, 15-17, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quan (5631446).

Although Quan fails to show the specific ranges as described in claims 2-7, 17, 19 and 22, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have accommodated the apparatus to fit these range limitations because these modifications do not provide any unexpected, or nonobvious result and would have been one of numerous parameters chosen by the ordinary skilled artisan during routine experimentation to accommodate the use of the apparatus for its intended application.

As to claim 8, Quan shows the first and second polymer layers are polyimide layers (note Kapton is a polyimide; col 3, ln 7).

As to claim 15, the vias comprising metal-plated through-holes is considered an inherent characteristic of a plated through-hole (plated through holes are comprised of metal elements)

As to claim 16, the added limitation is directed solely to a method of fabrication without any additional limitation to the claimed apparatus therefore the claimed apparatus is limited solely by the parent claim. (Detailed explanations of how product-by-process claims are defined is described in MPEP paragraphs 2173.05(p) and 2113)

7. The following is a statement of reasons for the indication of allowable subject matter:

Claims 9-14, 18, 20 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The added limitation of the dielectric substrate layer is a polymethylpentene layer as noted in claim 9 has not been found.

The added limitation of having circuit components disposed on the first metallization layer selected from discrete semiconductor components and integrated circuit chips as noted in claim 10 has not been found.

The added limitation of having the first metallized polymer layer and the second metallized polymer layer adhered to the dielectric substrate layer by an adhesive layer as noted in claim 12 has not been found.

The added limitation of having the vias comprise conductive epoxy-filled through-holes as noted in claim 14 has not been found.

The added limitation of having the first and second metallized polymer layers formed by establishing a fold in a unitary metallized polymer layer as noted in claim 18 has not been found.

The added limitation of having the first and second metallization layers being made of copper as noted in claim 20 has not been found.

The added limitation of having the first and second metallization layers comprising copper sublayers on the first and second polymer layer, nickel sublayers over the copper sublayers and gold sublayers over the nickel sublayers as noted in claim 21 has not been found.

8. Claims 23-43 continue to be allowable for the reasons made of record in the Office Action mailed on April 11, 2003.

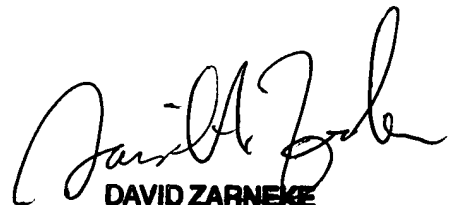
9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kobert whose telephone number is (571) 272-1963. The Examiner's Supervisor, Michael J. Tokar, can be reached at (571) 272-1812. For an automated menu of Tech Center 2800 phone numbers call (571) 272-2800.



Russell M. Kobert
Patent Examiner
Group Art Unit 2829
October 5, 2004



DAVID ZARNEKE
PRIMARY EXAMINER

10/6/04